

User's Manual



MMX 42/62 Series Compact Matrix Switchers



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Precautions

Safety Instructions • English



This symbol is intended to alert the user of important operating and maintenance (servicing) instructions in the literature provided with the equipment.



This symbol is intended to alert the user of the presence of uninsulated dangerous voltage within the product's enclosure that may present a risk of electric shock.

Caution

Read Instructions • Read and understand all safety and operating instructions before using the equipment.

Retain Instructions • The safety instructions should be kept for future reference.

Follow Warnings • Follow all warnings and instructions marked on the equipment or in the user information.

Avoid Attachments • Do not use tools or attachments that are not recommended by the equipment manufacturer because they may be hazardous.

Consignes de Sécurité • Français



Ce symbole sert à avertir l'utilisateur que la documentation fournie avec le matériel contient des instructions importantes concernant l'exploitation et la maintenance (réparation).



Ce symbole sert à avertir l'utilisateur de la présence dans le boîtier de l'appareil de tensions dangereuses non isolées posant des risques d'électrocution.

Attention

Lire les instructions • Prendre connaissance de toutes les consignes de sécurité et d'exploitation avant d'utiliser le matériel.

Conservé les instructions • Ranger les consignes de sécurité afin de pouvoir les consulter à l'avenir.

Respecter les avertissements • Observer tous les avertissements et consignes marqués sur le matériel ou présentés dans la documentation utilisateur.

Éviter les pièces de fixation • Ne pas utiliser de pièces de fixation ni d'outils non recommandés par le fabricant du matériel car cela risquerait de poser certains dangers.

Sicherheitsanleitungen • Deutsch



Dieses Symbol soll dem Benutzer in der im Lieferumfang enthaltenen Dokumentation besonders wichtige Hinweise zur Bedienung und Wartung (Instandhaltung) geben.



Dieses Symbol soll den Benutzer darauf aufmerksam machen, daß im Inneren des Gehäuses dieses Produktes gefährliche Spannungen, die nicht isoliert sind und die einen elektrischen Schock verursachen können, herrschen.

Achtung

Lesen der Anleitungen • Bevor Sie das Gerät zum ersten Mal verwenden, sollten Sie alle Sicherheits- und Bedienungsanleitungen genau durchlesen und verstehen.

Aufbewahren der Anleitungen • Die Hinweise zur elektrischen Sicherheit des Produktes sollten Sie aufbewahren, damit Sie im Bedarfsfall darauf zurückgreifen können.

Befolgen der Warnhinweise • Befolgen Sie alle Warnhinweise und Anleitungen auf dem Gerät oder in der Benutzerdokumentation.

Keine Zusatzgeräte • Verwenden Sie keine Werkzeuge oder Zusatzgeräte, die nicht ausdrücklich vom Hersteller empfohlen wurden, da diese eine Gefahrenquelle darstellen können.

Instrucciones de seguridad • Español



Este símbolo se utiliza para advertir al usuario sobre instrucciones importantes de operación y mantenimiento (o cambio de partes) que se desean destacar en el contenido de la documentación suministrada con los equipos.



Este símbolo se utiliza para advertir al usuario sobre la presencia de elementos con voltaje peligroso sin protección aislante, que puedan encontrarse dentro de la caja o alojamiento del producto, y que puedan representar riesgo de electrocución.

Precaución

Leer las instrucciones • Leer y analizar todas las instrucciones de operación y seguridad, antes de usar el equipo.

Conservar las instrucciones • Conservar las instrucciones de seguridad para futura consulta.

Obedecer las advertencias • Todas las advertencias e instrucciones marcadas en el equipo o en la documentación del usuario, deben ser obedecidas.

Evitar el uso de accesorios • No usar herramientas o accesorios que no sean específicamente recomendados por el fabricante, ya que podrían implicar riesgos.

Warning

Power sources • This equipment should be operated only from the power source indicated on the product. This equipment is intended to be used with a main power system with a grounded (neutral) conductor. The third (grounding) pin is a safety feature, do not attempt to bypass or disable it.

Power disconnection • To remove power from the equipment safely, remove all power cords from the rear of the equipment, or the desktop power module (if detachable), or from the power source receptacle (wall plug).

Power cord protection • Power cords should be routed so that they are not likely to be stepped on or pinched by items placed upon or against them.

Servicing • Refer all servicing to qualified service personnel. There are no user-serviceable parts inside. To prevent the risk of shock, do not attempt to service this equipment yourself because opening or removing covers may expose you to dangerous voltage or other hazards.

Slots and openings • If the equipment has slots or holes in the enclosure, these are provided to prevent overheating of sensitive components inside. These openings must never be blocked by other objects.

Lithium battery • There is a danger of explosion if battery is incorrectly replaced. Replace it only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Avertissement

Alimentations • Ne faire fonctionner ce matériel qu'avec la source d'alimentation indiquée sur l'appareil. Ce matériel doit être utilisé avec une alimentation principale comportant un fil de terre (neutre). Le troisième contact (de mise à la terre) constitue un dispositif de sécurité : n'essayez pas de le contourner ni de le désactiver.

Déconnexion de l'alimentation • Pour mettre le matériel hors tension sans danger, déconnectez tous les cordons d'alimentation de l'arrière de l'appareil ou du module d'alimentation de bureau (s'il est amovible) ou encore de la prise secteur.

Protection du cordon d'alimentation • Acheminer les cordons d'alimentation de manière à ce que personne ne risque de marcher dessus et à ce qu'ils ne soient pas écrasés ou pincés par des objets.

Réparation-maintenance • Faire exécuter toutes les interventions de réparation-maintenance par un technicien qualifié. Aucun des éléments internes ne peut être réparé par l'utilisateur. Afin d'éviter tout danger d'électrocution, l'utilisateur ne doit pas essayer de procéder lui-même à ces opérations car l'ouverture ou le retrait des couvercles risquent de l'exposer à de hautes tensions et autres dangers.

Fentes et orifices • Si le boîtier de l'appareil comporte des fentes ou des orifices, ceux-ci servent à empêcher les composants internes sensibles de surchauffer. Ces ouvertures ne doivent jamais être bloquées par des objets.

Lithium Batterie • Il a danger d'explosion s'il y a remplacement incorrect de la batterie. Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le constructeur. Mettre au reut les batteries usagées conformément aux instructions du fabricant.

Vorsicht

Stromquellen • Dieses Gerät sollte nur über die auf dem Produkt angegebene Stromquelle betrieben werden. Dieses Gerät wurde für eine Verwendung mit einer Hauptstromleitung mit einem geerdeten (neutralen) Leiter konzipiert. Der dritte Kontakt ist für einen Erdschluß, und stellt eine Sicherheitsfunktion dar. Diese sollte nicht umgangen oder außer Betrieb gesetzt werden.

Stromunterbrechung • Um das Gerät auf sichere Weise vom Netz zu trennen, sollten Sie alle Netzkabel aus der Rückseite des Gerätes, aus der externen Stromversorgung (falls dies möglich ist) oder aus der Wandsteckdose ziehen.

Schutz des Netzkabels • Netzkabel sollten stets so verlegt werden, daß sie nicht im Weg liegen und niemand darauf treten kann oder Objekte darauf oder unmittelbar dagegestellt werden können.

Wartung • Alle Wartungsmaßnahmen sollten nur von qualifiziertem Servicepersonal durchgeführt werden. Die internen Komponenten des Gerätes sind wartungsfrei. Zur Vermeidung eines elektrischen Schocks versuchen Sie in keinem Fall, dieses Gerät selbst öffnen, da beim Entfernen der Abdeckungen die Gefahr eines elektrischen Schlags und/oder andere Gefahren bestehen.

Schlitzte und Öffnungen • Wenn das Gerät Schlitzte oder Löcher im Gehäuse aufweist, dienen diese zur Vermeidung einer Überhitzung der empfindlichen Teile im Inneren. Diese Öffnungen dürfen niemals von anderen Objekten blockiert werden.

Litium-Batterie • Explosionsgefahr, falls die Batterie nicht richtig ersetzt wird. Ersetzen Sie verbrauchte Batterien nur durch den gleichen oder einen vergleichbaren Batterietyp, der auch vom Hersteller empfohlen wird. Entsorgen Sie verbrauchte Batterien bitte gemäß den Herstelleranweisungen.

Advertencia

Alimentación eléctrica • Este equipo debe conectarse únicamente a la fuente/tipo de alimentación eléctrica indicada en el mismo. La alimentación eléctrica de este equipo debe provenir de un sistema de distribución general con conductor neutro a tierra. La tercera pata (puesta a tierra) es una medida de seguridad, no puentearla ni eliminarla.

Desconexión de alimentación eléctrica • Para desconectar con seguridad la acometida de alimentación eléctrica al equipo, desenchufar todos los cables de alimentación en el panel trasero del equipo, o desenchufar el módulo de alimentación (si fuera independiente), o desenchufar el cable del receptáculo de la pared.

Protección del cables de alimentación • Los cables de alimentación eléctrica se deben instalar en lugares donde no sean pisados ni apretados por objetos que se puedan apoyar sobre ellos.

Reparaciones/mantenimiento • Solicitar siempre los servicios técnicos de personal calificado. En el interior no hay partes a las que el usuario deba acceder. Para evitar riesgo de electrocución, no intentar personalmente la reparación/ mantenimiento de este equipo, ya que al abrir o extraer las tapas puede quedar expuesto a voltajes peligrosos u otros riesgos.

Ranuras y aberturas • Si el equipo posee ranuras o orificios en su caja/alojamiento, es para evitar el sobrecalentamiento de componentes internos sensibles. Estas aberturas nunca se deben obstruir con otros objetos.

Batería de litio • Existe riesgo de explosión si esta batería se coloca en la posición incorrecta. Cambiar esta batería únicamente con el mismo tipo (o su equivalente) recomendado por el fabricante. Desachar las baterías usadas siguiendo las instrucciones del fabricante.

FCC Class A Notice

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Note: This unit was tested with shielded cables on the peripheral devices. Shielded cables must be used with the unit to ensure compliance.

Extron's Warranty

Extron Electronics warrants this product against defects in materials and workmanship for a period of three years from the date of purchase. In the event of malfunction during the warranty period attributable directly to faulty workmanship and/or materials, Extron Electronics will, at its option, repair or replace said products or components, to whatever extent it shall deem necessary to restore said product to proper operating condition, provided that it is returned within the warranty period, with proof of purchase and description of malfunction to:

USA, Canada, South America, and Central America:

Extron Electronics
1230 South Lewis Street
Anaheim, CA 92805, USA

Asia:

Extron Electronics, Asia
135 Joo Seng Road, #04-01
PM Industrial Bldg.
Singapore 368363

Europe, Africa, and the Middle East:

Extron Electronics, Europe
Beeldschermweg 6C
3821 AH Amersfoort
The Netherlands

Japan:

Extron Electronics, Japan
Daisan DMJ Bldg. 6F,
3-9-1 Kudan Minami
Chiyoda-ku, Tokyo 102-0074
Japan

This Limited Warranty does not apply if the fault has been caused by misuse, improper handling care, electrical or mechanical abuse, abnormal operating conditions or non-Extron authorized modification to the product.

If it has been determined that the product is defective, please call Extron and ask for an Applications Engineer at (714) 491-1500 (USA), 31.33.453.4040 (Europe), 65.6383.4400 (Asia), or 81.3.3511.7655 (Japan) to receive an RA# (Return Authorization number). This will begin the repair process as quickly as possible.

Units must be returned insured, with shipping charges prepaid. If not insured, you assume the risk of loss or damage during shipment. Returned units must include the serial number and a description of the problem, as well as the name of the person to contact in case there are any questions.

Extron Electronics makes no further warranties either expressed or implied with respect to the product and its quality, performance, merchantability, or fitness for any particular use. In no event will Extron Electronics be liable for direct, indirect, or consequential damages resulting from any defect in this product even if Extron Electronics has been advised of such damage.

Please note that laws vary from state to state and country to country, and that some provisions of this warranty may not apply to you.

Quick Start Guide — MMX 42/62

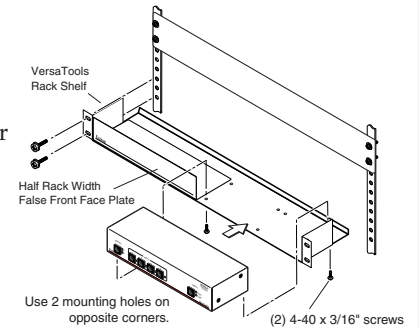
Installation

Step 1

Turn all of the equipment off and disconnect it from the power source.

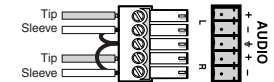
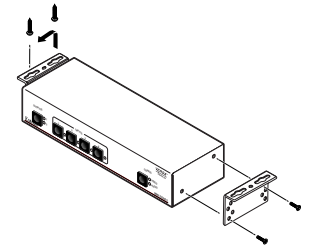
Step 2

Select your mounting option, install the appropriate brackets and mount the switcher. Otherwise, install the four rubber feet (included) and place the switcher on a desktop.

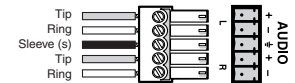


Step 3

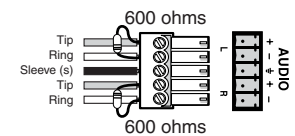
Attach the video input cable(s). Using video inputs 1 through 4 (MMX 42) or 1 through 6 (MMX 62) attach video inputs to the switcher using connectors appropriate for your model (BNC or 4-pin mini DIN). See "Rear Panel Cabling" in chapter 2, *Installation*.



Unbalanced Input
(high impedance)



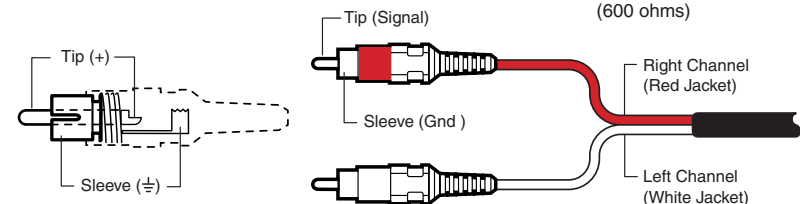
Balanced Input
(high impedance)



Balanced Input
(600 ohms)

Step 5

Attach the video output cable(s). Connect up to two video output devices to the switcher using



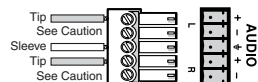
Quick Start Guide — MMX 42/62, cont'd

connectors appropriate for your model (BNC or 4-pin mini DIN).

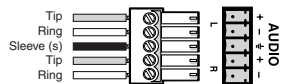
Step 6

Attach the audio output cable(s). Connect up to two audio output devices to the switcher using connectors appropriate for your model (5-pole, captive screw or RCA - see illustrations above and at right).

CAUTION Connect the sleeve to ground (Gnd). Connecting the sleeve to a negative (-) terminal will damage the audio output circuits.



Unbalanced Output



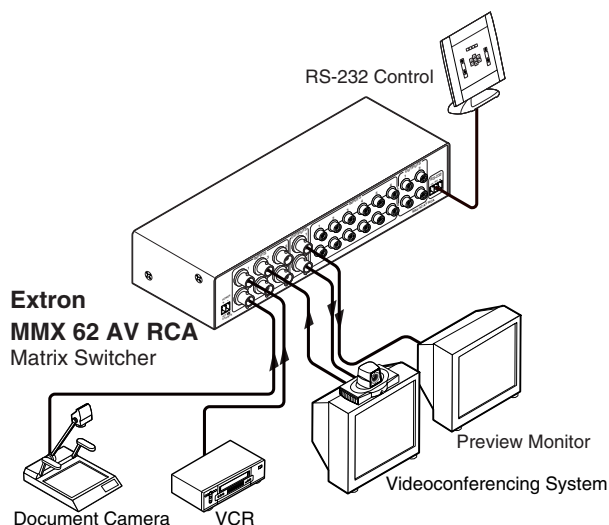
Balanced Output

Step 7

If the switcher is to be connected to a computer or host controller for remote control, connect the host's RS-232 cable to a 3-pole captive screw connector and connect it to the RS-232 port on the switcher. (See the serial port pinout table in Chapter 4 - Remote Control).

Step 8

Power up the input and output devices, then connect power to the switcher. Turn on the switcher by connecting the external power supply. See the appropriate chapters in this manual for further details.



Quick Start Guide — MMX 42/62, cont'd

Operation

Connecting an input to an output

Step 1

Press and release the Outputs button (①) to select the desired output. The LED (②) for the selected output lights.

Step 2

Press and release the Config button (④) as necessary to select either video and audio (audio follow) or video or audio (audio breakaway).

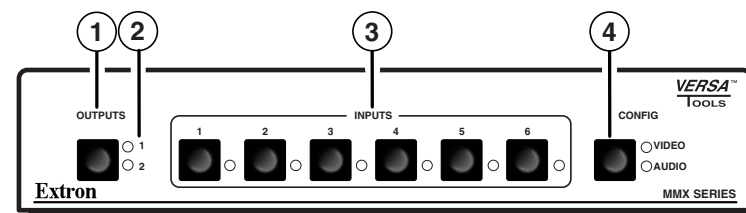
Step 3

Press and release the button (③) for the desired input. The LED for the selected input lights.

To switch to a different input, repeat steps 1 through 3.

A connection can also be created by an RS-232 device (see chapter 4, Remote Control).

NOTE If audio and video are tied from different inputs (audio breakaway), and if you select video and audio for display, the Video and the LED for the selected video input light steadily and the Audio LED and the LED for the selected audio input blink.



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MMX 42/62 Series Matrix Switchers

Chapter One

Introduction

About the MMX 42/62 Series Matrix Switchers

Features

About the MMX 42/62 Series Matrix Switchers

The Extron MMX 42/62 series of compact matrix switchers consists of four models of 4-input, 2-output video and audio matrix switchers, and four models of 6-input, 2-output video and audio matrix switchers, including the following:

MMX switcher model	Description
MMX 42 AV	4 x 2 composite video (BNC) and audio (captive screw) switcher
MMX 42 SVA	4 x 2 S-video (4-pin mini DIN) and audio (captive screw) switcher
MMX 42 AV RCA	4 x 2 composite video (BNC) and audio (RCA) switcher
MMX 42 SVA RCA	4 x 2 S-video (4-pin mini DIN) and audio (RCA) switcher
MMX 62 AV	6 x 2 composite video (BNC) and audio (captive screw) switcher
MMX 62 SVA	6 x 2 S-video (4-pin mini DIN) and audio (captive screw) switcher
MMX 62 AV RCA	6 x 2 composite video (BNC) and audio (RCA) switcher
MMX 62 SVA RCA	6 x 2 S-video (4-pin mini DIN) and audio (RCA) switcher

The switchers are compatible with NTSC 3.38 and 4.43, PAL, and SECAM video, and feature a 150MHz bandwidth at -3dB, fully loaded. When external sync is applied (to Input 1), video switching occurs during the vertical interval, providing glitch-free switching when all sources are genlocked.

All models feature front panel controls as well as an RS-232 connector (3-pin captive screw) to permit external remote control.

The MMX 42 switchers distribute any of four video and/or audio inputs to either or both outputs. The MMX 62 switchers distribute any of six video and/or audio inputs to either or both outputs. Any input can be switched to either or both outputs. The RCA models route unbalanced stereo audio and the AV and SVA models route balanced or unbalanced stereo audio. The audio switching can either be linked with the video (audio follow) or independent of the video (audio breakaway). Adjustable audio gain and attenuation (available via RS-232 control) compensates for level differences between audio inputs.

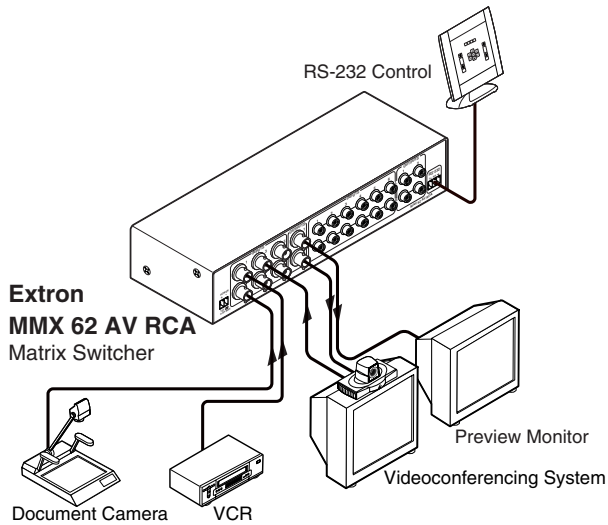


Figure 1-1 — Typical MMX 62 switcher application

These half-rack width switchers are part of the VersaTools™ line of basic distribution amplifiers, switchers, and video accessories. They can be mounted to a VersaTools 19" 1U rack shelf (Extron part #60-190-20) or on a standard Universal Extron rack shelf (Extron part #60-190-01). They can also be mounted under a desk or podium, using an under-desk mounting kit (Extron part #70-212-01). The units ship with external, desktop 12VDC power supplies, which accept 100VAC to 240VAC, 50/60 Hz input.

Features

Composite video (AV) models

- Inputs** — Composite video switchers accept up to four (MMX 42) or six (MMX 62) composite video inputs on BNC female connectors.
- Outputs** — Two composite video signals are output on BNC female connectors.

S-video (SV) models

- Inputs** — S-video switchers accept up to four S-video inputs (MMX 42) or six S-video inputs (MMX 62) on 4-pin mini DIN connectors.
- Outputs** — Two S-video signals are output on 4-pin mini DIN connectors.

All models

Audio inputs — MMX switchers accept up to four (MMX 42) or six (MMX 62) stereo audio inputs. AV and SVA models accept balanced or unbalanced stereo on 3.5 mm, 5-pole captive screw terminals. RCA models accept unbalanced stereo on RCA terminals.

Audio outputs — MMX switchers output two stereo audio outputs. AV and SVA models output balanced or unbalanced stereo on 3.5 mm, 5-pole captive screw terminals. RCA models output unbalanced stereo on RCA terminals.

Audio input gain and attenuation — Users can set the level of audio gain or attenuation (-18dB to +24dB) for each input via the RS-232 link. Individual input audio levels can be adjusted so there are no noticeable volume differences between sources.

Front panel control — The operator can select the inputs and outputs, as well as audio follow or breakaway, using the front panel buttons.

RS-232 control — The operator can control the MMX 42/62 from a remote computer or other host using a link to the RS-232 port. RS-232 control uses Extron's Simple Instruction Set™ (SIS™) or the Windows-based control software.

Simple Instruction Set — The Simple Instruction Set program lets a host computer control the MMX with simple commands.

Windows control software — Extron's Windows-based control software provides a graphic way to set up and control the MMX with an on-screen control panel. It allows the operator to remotely select inputs, make audio adjustments, and store settings for future use.

Mounting options — The MMX 42/62 is 1U high and a half-rack width wide. It can be installed on a VersaTools 1U rack shelf or a standard Universal rack shelf, or under a desk or podium using an under-desk mounting kit.

Auto-switching power supply — An external power supply with an IEC connector, which can be used internationally with any power input from 110 VAC to 240 VAC at 50 or 60 Hz and adapts automatically to the input type.



MMX 42/62 Series Matrix Switchers

Chapter Two

Installation

Installation Overview

Mounting the Switcher

Rear Panel Cabling

Installation

Installation Overview

To install and set up an Extron MMX 42/62 switcher for operation, follow these steps:

- 1 Turn off all of the equipment. Ensure that the video sources and the output display are all turned off and disconnected from the power source.
- 2 Mount the switcher. See *Mounting the switcher* in this chapter.
- 3 Attach the cables. See *Rear Panel Cabling* in this chapter.
- 4 Plug in the power supply, then turn on the display devices and the input devices.
- 5 Set the audio gain and attenuation. See *Remote Control* in chapter 4.

Mounting the Switcher

Rack mounting

For optional rack mounting, mount the MMX switcher on the left or right side of a 19" 1U VersaTools Rack Shelf (Extron part #60-190-20) or Universal 1U Rack Shelf (Extron part #60-190-01) (figure 2-1).

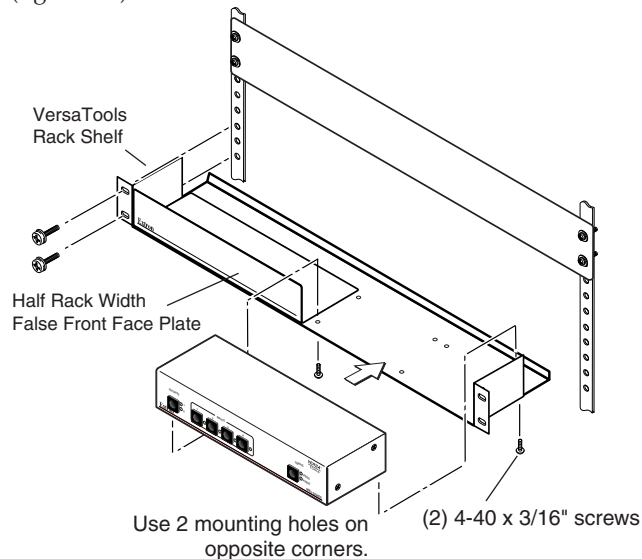


Figure 2-1 — Rack mounting the switcher

- 1 If feet were previously installed on the bottom of the case, remove them.
- 2 Mount the switcher on the rack shelf, using two 4-40 x 3/16" screws in opposite (diagonal) corners to secure the case to the shelf.
- 3 If desired, attach a false front panel, or a second half-rack-width device to the other side of the shelf.
- 4 Attach the rack shelf to the rack using four 10-32 x 3/4" bolts and four #10 beveled dress washers.

Under-desk mounting

Mount the unit to a desk or podium using the optional mounting kit (Extron part #70-212-01) as follows:

- 1 If rubber feet were previously installed on the bottom of the unit, remove them.
- 2 Attach the mounting brackets to the switcher with the machine screws provided (figure 2-2).
- 3 Hold the unit with the brackets attached against the underside of the table or other furniture. Mark the location of the screw holes of the bracket on the mounting surface.

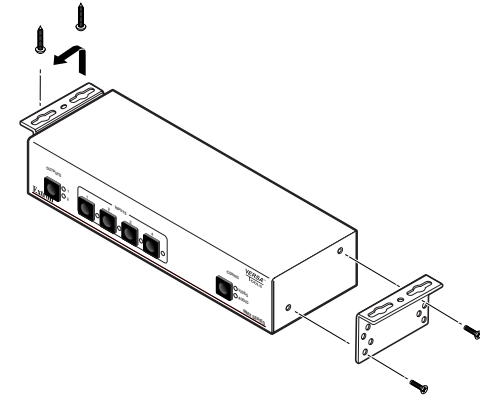


Figure 2-2 — Under-desk mounting the MMX

- 4 Drill 3/32" (2 mm) diameter pilot holes, 1/4" (6.3 mm) deep in the mounting surface at the marked screw locations.
- 5 Insert #8 wood screws into the four pilot holes. Tighten each screw into the mounting surface until just less than 1/4" (6.3 mm) of the screw head protrudes.
- 6 Align the mounting screws with the slots in the brackets and place the unit against the surface, with the screws through the bracket slots.

- 7. Slide the unit slightly forward or back, then tighten all four screws to secure the unit in place.

Rear Panel Cabling

All connectors are on the rear panel. The type and layout of the connectors on the rear panel will vary, depending on the model of the switcher. The following figures show the rear panels of the various MMX 62 switchers (models indicated). The rear panels of the MMX 42 series switchers are the same, except they have four instead of six video and audio input connectors.

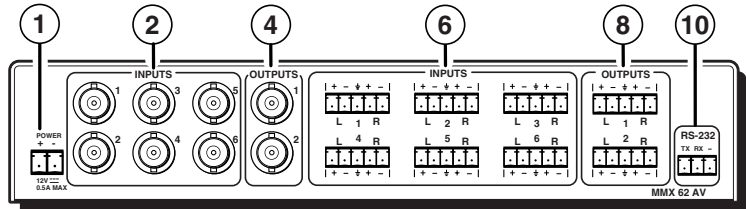


Figure 2-3 — MMX 62 AV rear panel

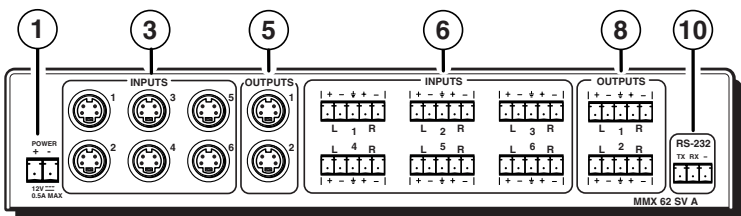


Figure 2-4 — MMX 62 SVA rear panel

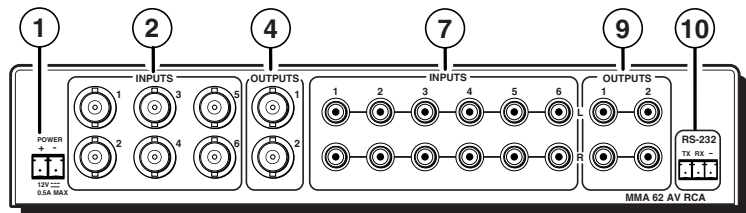


Figure 2-5 — MMX 62 AV RCA rear panel

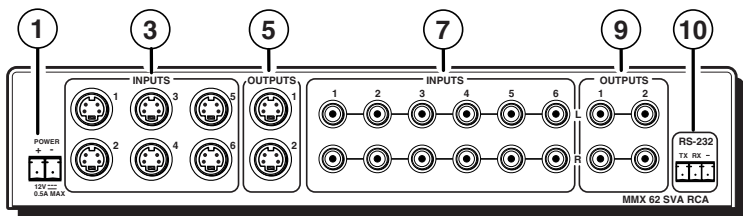


Figure 2-6 — MMX 62 SVA RCA rear panel

Power connection

- 1. **Power connector** — Plug the external 12V power supply into this 2-pole captive screw connector. The power supply is included with the unit. No damage will result if the power connector is wired incorrectly, but the unit will not power up.

NOTE Do not tin the stripped power supply leads before installing the captive screw connector. Tinned wires are not as secure in the captive screw connectors and could pull out.

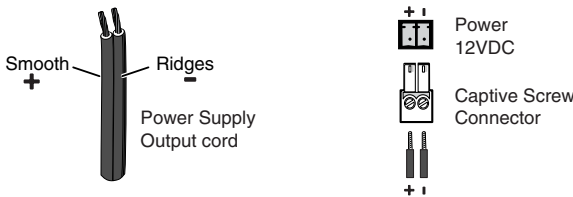


Figure 2-7 — Power connector wiring

WARNING The two power cord wires must be kept separate while the power supply is plugged in. Remove power before continuing.

Video signal input connections

- NOTE** The MMX switchers do not alter the video signal in any way. The signal output by the switcher is in the same format as the input.
- 2. **Composite video input connectors** — Connect composite video sources to these female BNC connectors.
- 3. **S-video input connectors** — Connect S-video sources to these 4-pin mini DIN connectors.

Video signal output connections

- ④ **Composite video output connectors** — Connect composite video displays to these two female BNC connectors.
- ⑤ **S-video output connectors** — Connect S-video displays to these two 4-pin mini DIN connectors.

Audio signal input connections

- ⑥ **3.5 mm, 5-pole captive screw connectors** — Connect balanced and unbalanced stereo audio inputs to these sockets using connectors which are included with each MMX SVA switcher (you must supply the audio cable). See figure 2-8 for an illustration on how to wire a connector for the appropriate input type and impedance level.

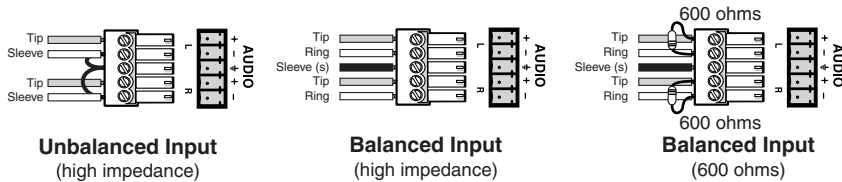


Figure 2-8 — Captive screw connector wiring for input

NOTE When making connections for the switcher from existing audio cables, see figure 2-9. A mono audio connector consists of the tip and sleeve. A stereo audio connector consists of the tip, ring and sleeve.

The audio level for each input can be individually set, via RS-232 link, to ensure that the level on the output does not vary from input to input. See chapter 3, *Operation*, and chapter 4, *Remote Control*, for details.

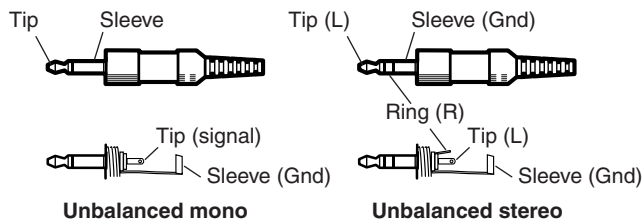


Figure 2-9 — Phono audio connectors

- ⑦ **RCA audio connectors** — Connect unbalanced stereo audio inputs to these RCA connectors. See figure 2-10 for an illustration on how to wire the RCA connector.

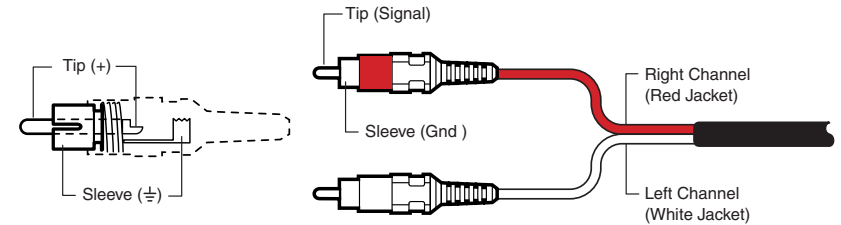


Figure 2-10 — RCA connector wiring

Audio signal output connections

- ⑧ **3.5 mm, 5-pole captive screw connectors** — Connect balanced and/or unbalanced stereo audio outputs to these sockets using connectors which are included with each MMX SVA switcher (you must supply the audio cable). See figure 2-11 for an illustration on how to wire a connector for the appropriate output type.

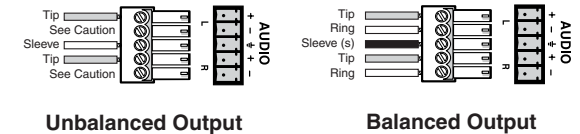


Figure 2-11 — Captive screw connector wiring for audio output

CAUTION Connect the sleeve to ground (Gnd). Connecting the sleeve to a negative (-) terminal will damage the audio output circuits.

- ⑨ **RCA audio connectors** — Connect unbalanced stereo audio outputs to these RCA connectors. See figure 2-10 for an illustration on how to wire the RCA connector.

By default, the audio output follows the video switch. Audio breakaway, commanded via the RS-232 link, allows the user to select from any one of the audio input sources. See chapter 4, *Remote Control* for details on the RS-232 connection.

RS-232 connection

- ⑩ **Remote connector** — Connect a host device, such as a computer or a touch control panel, to the MMX switcher via this 3-pole captive screw connector for remote control using the Simple Instruction Set (SIS).

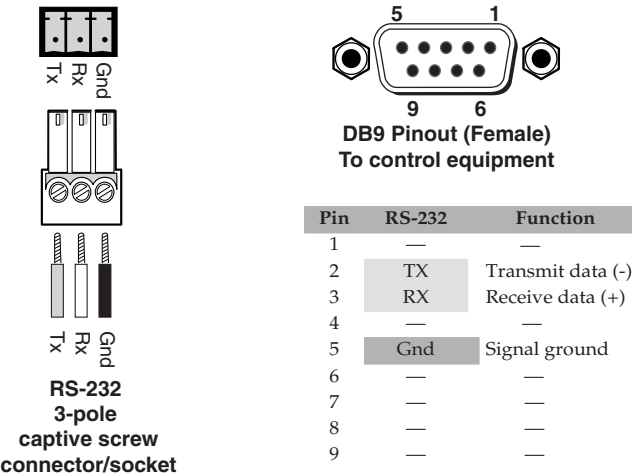


Figure 2-12 — Wiring the remote connector

The RS-232 protocol of the rear panel RS-232/Remote connector is 9600 baud, 1 stop bit, no parity, and no flow control.

See chapter 4, *Remote Control*, for definitions of the SIS commands and details on how to install and use the control software.



Chapter Three

Operation

- Front Panel Controls and Indicators
- Front Panel Operations
- Memory
- Executive Mode
- Genlock Sync
- Troubleshooting — If no image appears

Operation

Front Panel Controls and Indicators

Figure 3-1 shows the controls and indicators on the front panel of the MMX 62 compact matrix switcher.

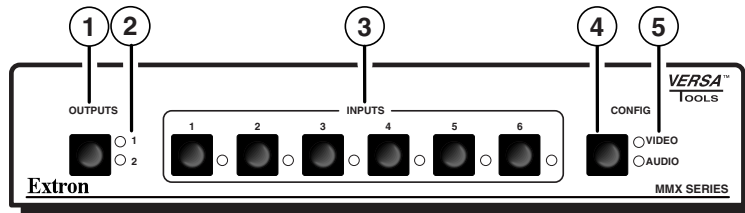


Figure 3-1 — Front panel controls and indicators (MMX 62 shown)

- ① **Outputs button** — The Outputs button toggles between output 1 and output 2.
- ② **Output LEDs** — The Output LEDs indicate the selected output. When an output is muted (audio and/or video) the input LED for the muted output will be off (audio and/or video).
- ③ **Input buttons and LEDs** — The input buttons (1 through 4 on the MMX 42 and 1 through 6 on the MMX 62) select an input for output. The input LEDs indicate the selected input. When the audio or video is muted, the input LEDs will be off for the signal that is muted.
- ④ **Video and/or audio selection** — When pressed and released, the Config button cycles through video, audio, and video only selected for configuration.

The Video and Audio LEDs indicate whether video, audio, or both are selected for display and/or selection. If audio is broken away and video and audio are selected for display, the Audio LED blinks.

Front Panel Operations

Plug in all system components and turn on the input devices (such as DVD players, VCRs, and DSS receivers) and the output devices. Set the input devices to output video using each device's own operating instructions.

Creating ties

A **Tie** is an input-to-output connection. An input can be **tied** to both outputs. (An output can never be **tied** to more than one input.)

Create video and/or audio ties using the front panel buttons as follows:

1. Press and release the Outputs button to select the desired output. The LED for the selected output lights.
2. Press and release the Config button as necessary to select either video and audio (audio follow) or video or audio (audio breakaway).
3. Press and release the button for the desired input. The LED for the selected input lights.

NOTE If audio and video are tied from different inputs (audio breakaway), and if you select video and audio for display, the Video LED and the LED for the selected video input light steadily and the Audio LED and the LED for the selected audio input blink.

A tie can also be created by an RS-232 device (see chapter 4, *Remote Control*).

NOTE If an output is muted via RS-232, pressing any input button will unmute the output.

Memory

Audio settings are saved in nonvolatile memory. When the switcher is powered off, the settings are retained. When the switcher is powered on again, the switcher recalls the connections made prior to power down and the saved settings are active. On initial power on, the switcher defaults to input 1 tied to output 1 and input 2 tied to output 2.

Executive Mode

When executive mode is on it locks all front panel functions. To toggle the executive mode on or off, press and hold the Output and Config buttons for more than 3 seconds. All LEDs will flash to indicate that the command has been accepted.

Genlock Sync

When switching between inputs, the resulting image change should be seamless and clean. The MMX switchers reference the external sync signal on input #1 to synchronize switching during the vertical interval. This allows vertical interval switching between genlocked sources. Without the external sync locking feature, switching between inputs can result in a brief rolling (sync loss) or a brief change in the picture size.

System Reset

To reset the unit to factory defaults, press and hold the Config button while power is applied. This resets the audio input settings to unity (0dB) and connects input 1 to outputs 1 and 2, audio and video. The audio and video Config LEDs are lit.

Troubleshooting — If no image appears

1. Ensure that all devices are plugged in and powered on. The switcher is receiving power if the Power LED is lit.
2. Ensure an active input and output are selected on the MMX switcher.
3. Ensure that the proper signal format is supplied.
4. Check the cabling and make corrections as necessary.
5. Call the Extron S³ Sales & Technical Support Hotline if necessary.



MMX 42/62 Series Matrix Switchers

4

Chapter Four

Remote Control

Simple Instruction Set Control

Windows®-Based Program Control

Remote Control

The switcher’s rear panel Remote connector (figure 4-1) can be connected to the serial port output of a host device. Remote communications with the switcher are via Extron’s Simple Instruction Set or using Extron’s Windows-based control program.

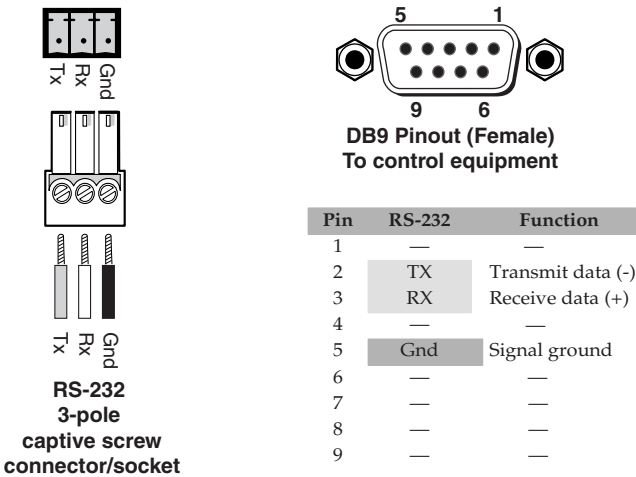


Figure 4-1 — Remote connector pinout

The RS-232 protocol of the rear panel RS-232/Remote connector is 9600 baud, 1 stop bit, no parity, and no flow control.

Simple Instruction Set Control

Host-to-interface communications

SIS commands consist of one or more characters per field. No special characters are required to begin or end a command character sequence. When a command is valid, the switcher executes the command and sends a response to the host device. All responses from the switcher to the host end with a carriage return and a line feed (CR/LF = `↵`), which signals the end of the response character string. A string is one or more characters.

Switcher-initiated messages

When a local event, such as a front panel operation or error condition, occurs, the switcher responds by sending a message to the host. The switcher-initiated messages are listed below:

`↵ (C) Copyright 2003, Extron Electronics MMX xx, Vx.xx ↵`

The switcher issues the copyright message and the input selected message when it first powers on. Vx.xx is the firmware

version number. Outy Inn All identifies the currently selected ties, where y is the output number, n is the input number, and All is both video and audio (the power-up default is video and audio output 1 tied to input 1 and video and audio output 2 tied to input 2). The switcher also sends the `↵ Outy Inn ↵` message whenever the selected input is changed using the front panel buttons.

↵ Reconfig ↵

The switcher initiates this message when there is a change in the audio gain setting for any input.

Error responses

When the switcher receives a valid SIS command, it executes the command and sends a response to the host device. If the switcher is unable to execute the command because the command is invalid or it contains invalid parameters, the switcher returns an error response to the host. The error response codes are:

- `↵ E01 ↵` - Invalid input channel number (out of range)
- `↵ E10 ↵` - Invalid command
- `↵ E12 ↵` - Invalid output number (out of range)
- `↵ E13 ↵` - Invalid parameter

Timeout

Pauses of 10 seconds or longer between command ASCII characters result in a timeout. The command operation is aborted with no other indication.

Using the command/response table

The command/response table is on the next page. Lower case letters are allowed in the command field only as indicated. Symbols are used throughout the table to represent variables in the command/response fields. Command and response examples are shown throughout the table. The ASCII to HEX conversion table is for use with the command/response table.

Symbol definitions

- ↵ = CR/LF (carriage return/line feed) (0x0D 0A)
- = space
- [X1] = Input number 1 through maximum
- [X2] = Input number 0 through maximum (Input 0 = deselect output)
- [X3] = Output number 1 or 2
- [X4] = Gain/attenuation value -18 to +24 (43 steps)
- [X5] = Gain value (+dB) Numeric value, 0 to 24dB
- [X6] = Attenuation value (-dB) Numeric value, 1 to 18dB
- [X9] = On or Off 0 or 1 (0=Off and 1=On)
- [X19] = Software version x.xx

ASCII to HEX Conversion Table												Esc	1B	CR	0D	LF	0A													
20	!	21	"	22	#	23	\$	24	%	25	&	26	'	27	(	28	)	29	*	2A	+	2B	,	2C	-	2D	.	2E	/	2F
0 30	1 31	2 32	3 33	4 34	5 35	6 36	7 37	8 38	9 39	:	3A	;	3B	<	3C	=	3D	>	3E	? 3F										
@ 40	A 41	B 42	C 43	D 44	E 45	F 46	G 47	H 48	I 49	J 4A	K 4B	L 4C	M 4D	N 4E	O 4F															
P 50	Q 51	R 52	S 53	T 54	U 55	V 56	W 57	X 58	Y 59	Z 5A	[5B	\ 5C	] 5D	^ 5E	_ 5F															
` 60	a 61	b 62	c 63	d 64	e 65	f 66	g 67	h 68	i 69	j 6A	k 6B	l 6C	m 6D	n 6E	o 6F															
p 70	q 71	r 72	s 73	t 74	u 75	v 76	w 77	x 78	y 79	z 7A	{ 7B	| 7C	}	7D	~ 7E	DEL	7F													

Command/response table for SIS commands

Command	ASCII Command (host to switcher)	Response (switcher to host)	Additional description
Output switching	Select video/audio input	[X2]*[X3]!	Tie input [X2] video and audio to output [X3].
	Example:	5*2!	Tie input 5 video and audio to output 2.
	Select video input only	[X2]*[X3]%	Tie input [X2] video to output [X3] (audio breakaway).
	Select audio input only	[X2]*[X3]\$	Tie input [X2] audio to output [X3] (audio breakaway).
Note: Commands can be made back to back with no spaces.			
Audio mute	Audio mute	[X3]*1Z/z	Mute audio output [X3].
	Audio unmute	[X3]*0Z/z	Unmute audio output [X3].
	Read audio mute	[X3]Z/z	Audio mute [X9]. (0=off and 1=on)
	Global --		
	Audio mute all	1*Z/z	Mute all audio
Video mute	Audio unmute all	0*Z/z	Unmute all audio
	Video mute	[X3]*1B/b	Video mute output [X2]
	Video unmute	[X3]*0B/b	Video unmute output [X2]
	Read Video mute	[X3]B/b	Video mute [X9] (0=off and 1=on)
	Global --		
Video mute all	Video mute all	1*B/b	Mute all video
	Video unmute all	0*B/b	Unmute all video

Command	ASCII Command (host to switcher)	Response (switcher to host)	Additional description
View			
Video output tie	X3%	X2↓	Video output tied to X2 input (0* through max.)
Audio output tie	X3\$	X2↓	Audio output tied to X2 input (0* through max.)
Gain for input	X1G	X4↓	Input audio gain/attenuation = X4 (-18 to +24) * 0 = output deselected.
Setting input audio gain/attenuation			
Set gain (+dB)	X1+X5G	INX1•AUDX4↓	Set gain for input X1 to X4dB.
Example:	4*3G	IN4•AUD=3↓	Set gain for input 4 to 3dB.
Set attenuation (-dB)	X1+X6g	INX1•AUD=X4↓	Set attenuation for input X1 to X4dB.
Increment gain	X1+G	INX1•AUDX4↓	Increment gain for input X1 by +1dB.
Decrement gain	X1-G	INX1•AUDX4↓	Decrement gain for input X1 by -1dB.
Front panel executive mode			
Lock front panel	1 X/x	Exe 1↓	Lock front panel
Unlock front panel	0 X/x	Exe 0↓	Unlock front panel
Lock status	X/x	X9↓	Front panel lock status = X9 (0= off and 1=on).
Reset commands			
Reset all audio gains to 0dB	Esc ZA↔	Zpa↓	Resets all audio gains to 0dB
Unmute all audio	Esc ZZ↔	Zpz↓	Unmutes all audio
Unmute all video	Esc ZB↔	Zpb↓	Unmutes all video
System reset to factory default	Esc ZXXX↔	Zpx↓	Resets switcher to factory default settings.
Miscellaneous commands			
Information request	I/i	V1*X1•A1*X1•V2*X1•A2*X1•Vmt1*X9•Amt1*X9•Vmt2*X9•Amt2*X9QVERX6↓	xx-xxx-xx = MMX part number (see Appendix A).
Request part number	N/n	Nxx-xxx-xx↓	Controller software version X19.
Query software version	Q/q	QVERX19↓	

Windows®-Based Program Control

The Universal Switcher Control Program is compatible with Windows 3.1/3.11, Windows 95/98, Windows NT, Windows ME, and Windows 2000 and provides remote control of the input selection for each output (including audio breakaway) and audio gain and attenuation adjustments.

Updates to this program can be downloaded from the Extron Web site (<http://www.extron.com>).

Installing the software

The program is contained on a single 3.5" diskette and can be run from the floppy drive, or it can be installed and run from the hard drive. To install the software on the hard drive, run setup.exe from the floppy disk and follow the screen instructions.

By default, the Windows installation creates a C:\UNIVSW folder and places two icons (Universal Switcher Control Program and Universal Switcher Help) into a group named "Extron Electronics".

Using the software

- To run the software, double click on the Universal Switcher Control Program icon in the Extron Electronics program group.
- In the Comm Port Selection window (figure 4-2), click on the comm port that is connected to the MMX's RS-232 port.

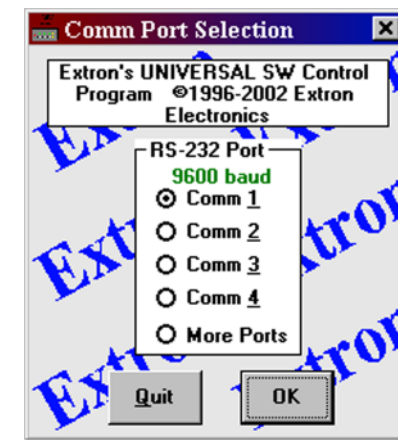


Figure 4-2 — Universal Switcher Comm Port Selection window

- The Extron Universal Switcher Control Program window (figure 4-3) displays the selected inputs for each output and the audio gain for the selected audio inputs.

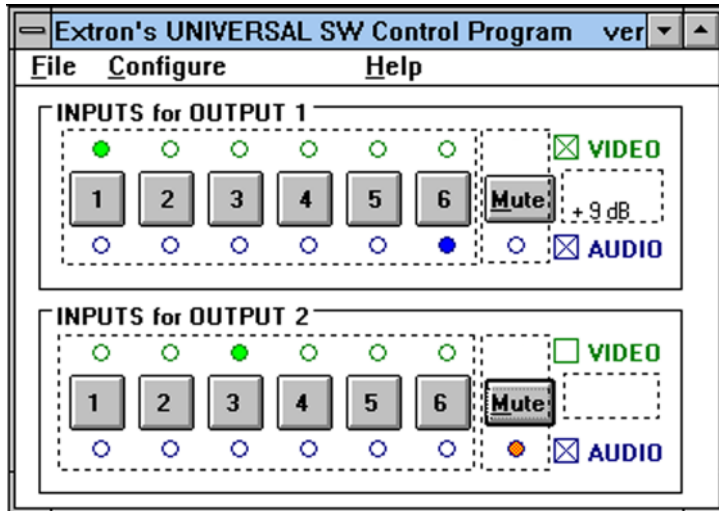


Figure 4-3 — Universal Switcher Control Program window

Input selection

Switching is accomplished from within the Universal Switcher Control Program by selecting which input to tie to one or both outputs (see figure 4-3). The top row of inputs is available for output 1 and the bottom row of inputs is available for output 2. The same input can be routed to both outputs, but an output can only be tied to a single input.

To tie an input to an output:

- On the Universal Switcher Control Program main window, click on the numbered input button you want to tie to each output. Checkboxes control whether the switcher selects video, audio, or both (system default is both video and audio) and indicators (green for video and/or blue for audio) will light to indicate your selection.
- To switch the audio signal independently from the video signal (audio breakaway) click the Video or Audio checkbox as desired (the default is both boxes on).

Input selection from the switcher's front panel will cause the program to "light" the associated indicators in the program to reflect the change.

Muting the audio signals

To mute one or both of the switcher's outputs:

- Click on the **MUTE** button for the selected output(s) on the Universal Switcher Control Program main window (figure 4-3). An associated orange indicator will "light" to indicate that the audio and/or video output is muted.
- To unmute the audio signal, click the **MUTE** button again to uncheck the audio mute for the selected output.

The MUTE function is not available from the switcher's front panel and can only be achieved through RS-232 control. When muted, the LED's for the muted inputs on the front panel will be off.

Setting audio levels

The box between the video and audio checkboxes displays the audio gain (or attenuation) setting for the currently selected audio input.

To set or changes the levels for audio inputs:

- From the Universal Switcher Control Program main window (figure 4-3) click on Configure.
- From the drop-down menu, select Audio Inputs to display the Configure Audio Options window (see figure 4-4).

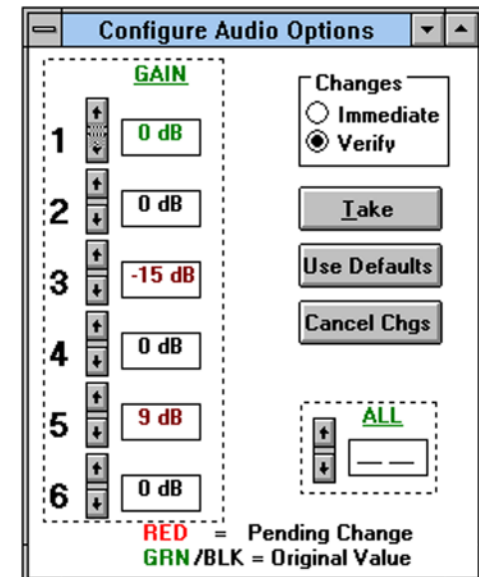


Figure 4-4 — Configure Audio Option window

3. Move the slider up (increase gain), or down (decrease gain) for selected audio input. Use the **ALL** slider control to change all input settings simultaneously. Settings are changed in 1 dB increments between -18 dB and +24 dB, and affect both left and right channels equally.
4. Click the **Take** button (in Verify mode) to make the entered changes effective.

The **Changes: Immediate** or **Changes: Verify** buttons control how the audio configuration changes are applied to the switcher. In Immediate mode, every change (including each audio gain step) is instantly written to the unit. In Verify mode, the changes made on screen are not applied until you click the **Take** button (which is enabled when verify mode is chosen) and may be cancelled at any time before pressing Take.

5. Click on the **Close** button to close the Audio Configuration window. If there is an audio configuration change pending, the **Close** button changes to a **Cancel Chgs** button. Clicking it as **Cancel Chgs** restores the screen to the current switcher audio configuration (cancelling the pending changes).
6. To set the switcher's audio configuration back to factory defaults, click on the **Use Defaults** button.

Executive mode

If the switcher is installed in an accessible area, where operation by unauthorized personnel may be a problem, a security lock-out feature called Executive mode can be implemented. When Executive mode is enabled, the front panel is locked and either an RS-232 command or front panel command (press and hold the Output and Config buttons for 3 seconds) is required to unlock the front panel before it can be operated.

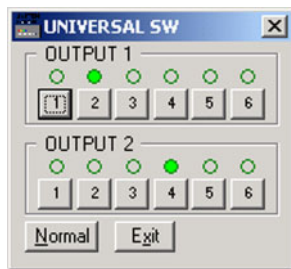


Figure 4-5 — Executive Mode window

To enable/disable Executive mode:

1. From the Universal Switcher Control Program main window (figure 4-3) click Configure.
2. From the drop-down menu, select Executive Mode to enable Executive mode and display the Executive mode window (see figure 4-5).
3. Click an input to select both video and audio input for each output. Breakaway can only be achieved by clicking the Video/Audio checkboxes from the Normal mode.
4. To exit the program while in Executive mode, click the **Exit** button.
5. To disable Executive mode, access the Universal Switcher Control Program and click on the **Normal** button. The Universal Switcher Control Program normal window (figure 4-3) is displayed and Normal mode is enabled.

Updating the firmware

It is also possible to update the firmware in your MMX Matrix Switcher from the Universal Switcher Control Program. Firmware files can be obtained on the Extron Web site (www.extron.com) or by contacting the Extron S³ Sales & Technical Support Hotline.

NOTE When you receive and save the updated firmware file, be sure to remember where you save it. You will be asked to load the file as part of this procedure.

To update the firmware:

1. From the menu bar at the top of the the Universal Switcher Control Program main window (figure 4-3) click on File.
2. From the drop-down menu, select Update Firmware. A box showing the current firmware version will be displayed (see figure 4-6).

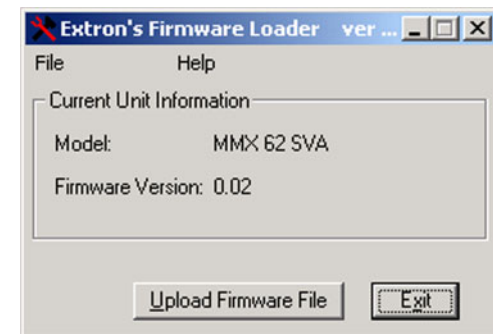


Figure 4-6 — Extron's Firmware Loader

3. Click on Upload Firmware File. A dialog box asking you to select the update file is displayed (see Figure 4-7).

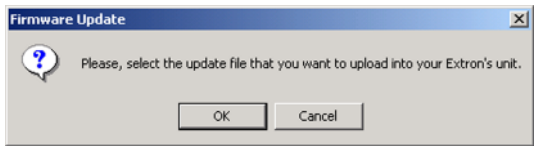


Figure 4-7 — Select update file box

4. Click OK. When the Browser window (figure 4-8) opens, find the updated firmware file (where you previously saved it) and select the file, then click Open to load it.

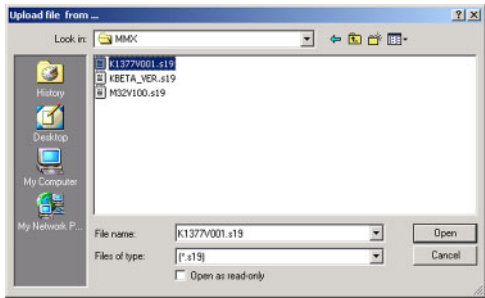


Figure 4-8 — Browser window

NOTE The firmware update file must have an .s19 extension. If it doesn't have that extension it will not work properly.

5. The firmware is updated as the file loads. When the update is complete, a dialog box will open, asking you to exit the utility program if the new firmware version is correct or to run the utility again if it didn't load correctly. Click Okay to complete the process (the LEDs on your MMX switcher will cycle through the power on sequence). Your switcher is ready to use.

Using the help system

For information about program features, you can access the help program in any of the following ways:

- From the Extron Electronics program group, double-click on the Universal Switcher Help icon.
- From within the Windows-based switcher control program, click on the Help entry on the task bar.
- From within the Windows-based switcher control program, press the F1 key.



MMX 42/62 Series Matrix Switchers

Appendix A

Specifications
Accessories and Part Numbers

- Specifications
- Included Parts
- Accessories
- Cables

Specifications

Video

Routing	
MMX 42 Series	4 x 2 matrix
MMX 62 Series	6 x 2 matrix
Gain	Unity
Bandwidth	150 MHz (-3dB), fully loaded
	0 - 10 MHz no more than 0.1dB to -0.1dB
	0 - 30 MHz no more than 0.5dB to -0.5dB
Phase between I/Os	<1.28° at 3.58 MHz
Differential phase error	0.1° at 3.58 MHz and 4.43 MHz
Differential gain error	0.1% at 3.58 MHz and 4.43 MHz
Max. propagation of delay	5 ns typical (±1 ns)
Crosstalk	-50dB @ 5 MHz
Switching speed	200 ns (max.)

Video input

Number/signal type	
MMX 42 and MMX 62 composite video models	4 or 6 composite video
MMX 42 and MMX 62 S-video models	4 or 6 S-video
Connectors	
MMX 42 and MMX 62 composite video models	4 or 6 female BNC
MMX 42 and MMX 62 S-video models	4 or 6 female 4-pin mini DIN
Nominal level	1V p-p for Y of S-video, and for composite video
	0.3V p-p for C of S-video
Minimum/maximum levels	Analog: 0.5V to 2.0V p-p with no offset
Impedance	75 ohms
Return loss	<-30dB @ 5 MHz
Maximum DC offset	1.5V

Video output

Number/signal type	
MMX 42 and MMX 62 composite video models	2 composite video
MMX 42 and MMX 62 S-video models	2 S-video

Connectors	
MMX 42 and MMX 62 composite video models	2 female BNC
MMX 42 and MMX 62 S-video models	2 female 4-pin mini DIN
Nominal level	1V p-p for Y of S-video, and for composite video
	0.3V p-p for C of S-video
Minimum/maximum levels	0V to 2.0V p-p
Impedance	75 ohms
Return loss	-30dB @ 5 MHz
DC offset	±5mV maximum with input at 0 offset
Switching type	Vertical interval

Sync

Standards	NTSC 3.58, NTSC 4.43, PAL, SECAM
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Audio

Routing	
MMX 42 Series	4 x 2 stereo matrix
MMX 62 Series	6 x 2 stereo matrix
Gain	
Captive screw models	Unbalanced output: -6dB; balanced output: 0dB
RCA connector models	Unbalanced output: 0dB
Frequency response	20 Hz to 20 kHz, ±0.05dB
THD + Noise	0.03% @ 1 kHz at rated nominal level
S/N	>90dB, output 21dBu, balanced, at rated maximum output
Crosstalk	<-80dB @ 1 kHz, fully loaded
Stereo channel separation	>90dB @ 1 kHz
CMRR	>75dB @ 20 Hz to 20 kHz

Audio input

Number/signal type	
Captive screw models	4 or 6 stereo, balanced/unbalanced
RCA connector models	4 or 6 stereo, unbalanced
Connectors	
Captive screw models	(4 or 6) 3.5 mm captive screw connectors, 5 pole
RCA connector models	4 or 6 pairs of female RCA connectors

Accessories and Part Numbers

Impedance	>10 kohms unbalanced/balanced, DC coupled
Nominal level	-10dBV (316mV)
Maximum level	+19.5dBu, (balanced or unbalanced) at 1%THD+N
Input gain adjustment	-18dB to +24dB, adjustable per input via RS-232 only

Audio output

Number/signal type	
Captive screw models	2 stereo, balanced/unbalanced
RCA connector models ...	2 stereo, unbalanced
Connectors	
Captive screw models	(2) 3.5 mm captive screw connectors, 5 pole
RCA connector models ...	2 pairs of female RCA connectors
Impedance	50 ohms unbalanced, 100 ohms balanced
Gain error	±0.1dB channel to channel
Maximum level (Hi-Z)	>+21dBu, balanced or unbalanced at stated %THD+N
Maximum level (600 ohm)	>+15dBm, balanced or unbalanced at stated %THD+N

NOTE 0dBu = 0.775 volts (RMS).

Control/remote — switcher

Serial control port	RS-232, female 3.5 mm captive screw connector, 3-pole
Baud rate and protocol	9600, 8-bit, 1 stop bit, no parity
Serial control pin configurations	1 = TX, 2 = RX, 3 = GND
Program control	Extron’s control program for Windows® Extron’s Simple Instruction Set™ – SIS™

General

Power	100VAC to 240VAC, 50/60 Hz, 6 watts, external, autoswitchable; to 12VDC, 1 A power supply. Product requires 0.5 A.
Temperature/humidity	Storage -40° to +158°F (-40° to +70°C) / 10% to 90%, non-condensing Operating +32° to +122°F (0° to +50°C) / 10% to 90%, non-condensing
Rack mount	Yes, with optional rack shelf, part #60-190-01 or #60-190-20

Enclosure type	Metal
Enclosure dimensions	1.75" H x 8.75" W x 3.0" D (1U high, half rack width) 4.4 cm H x 22.2 cm W x 7.6 cm D (Depth excludes connectors.)
Product weight	4.0 lbs (1.8 kg)
Shipping weight	5 lbs (2.3 kg)
Vibration	ISTA/NSTA 1A in carton (International Safe Transit Association)
Listings	UL, CUL
Compliances	CE, FCC Class A , VCCI, AS/NZS, ICES
MTBF	30,000 hours
Warranty	3 years parts and labor

NOTE Specifications are subject to change without notice.

Included Parts

Included parts	Part number
MMX 42 AV 4 x 2 video/audio switcher	60-556-21
or MMX 42 SVA 4 x 2 S-video/audio switcher	60-556-31
or MMX 42 AV RCA 4 x 2 video/audio switcher	60-556-22
or MMX 42 SVA RCA 4 x 2 S-video/audio switcher	60-556-32
or MMX 62 AV 6 x 2 video/audio switcher	60-557-21
or MMX 62 SVA 6 x 2 S-video/audio switcher	60-557-31
or MMX 62 AV RCA 6 x 2 video/audio switcher	60-557-22
or MMX 62 SVA RCA 6 x 2 S-video/audio switcher	60-557-32
& External power supply	
& Tweeker	
& MMX 42/62 Series User’s Manual	

Accessories

Accessories	Part number
Extron 19" 1U Universal Rack Shelf	60-190-01
Extron VersaTools 1U Rack Shelf	60-190-20
Under-Desk Mounting kit	70-212-01

Accessories and Part Numbers, cont'd

Cables

Extron's SVHS cable is suitable for S-video and Super High Resolution SHR 1 cable is suitable for composite video. Both these families of Extron cables have male connectors on both ends.

S-video Cable	Part number
SVHS 6' (6 feet/1.8 meters)	26-316-02
SVHS 12' (12 feet/3.7 meters)	26-316-03
SVHS 20' (20 feet/6.1 meters)	26-316-01
SVHS 30' (30 feet/9.1 meters)	26-316-04
SVHS 50' (50 feet/15.2 meters)	26-316-05
SVHS 75' (75 feet/22.9 meters)	26-316-06
SVHS 100' (100 feet/30.4 meters)	26-316-07

Super High Resolution Cable	Part number
SHR 1-3' (3 feet/0.9 meter)	26-383-01
SHR 1-6' (6 feet/1.8 meters)	26-383-12
SHR 1-12' (12 feet/3.7 meters)	26-383-07
SHR 1-25' (25 feet/7.6 meters)	26-383-04
SHR 1-50'HR (50 feet/15.2 meters)	26-383-05
SHR 1-75'HR (75 feet/22.9 meters)	26-383-06
SHR 1-100'HR (100 feet/30.5 meters)	26-383-03
SHR 1-150'HR (150 feet/45.0 meters)	26-383-08
SHR 1-200'HR (200 feet/60.0 meters)	26-383-09
SHR 1-250'HR (250 feet/75.0 meters)	26-383-10
SHR 1-300' (300 feet/91.4 meters)	26-383-11